CLAIMS

1. A method for compensating for phase error in a quadrature local oscillator of a quadrature modulator, the method comprising the steps of:

generating a first scaling factor and a second scaling factor, the first scaling factor and the second scaling factor being derived from the phase error of the quadrature local oscillator used during quadrature modulation, the first scaling factor comprising $2.\cos(\alpha/2)$, wherein α is the relative phase of the quadrature outputs of the local oscillator utilised during quadrature modulation of the added and subtracted signals;

scaling input I and Q signsls by the first and second scaling factors, respectively;

adding the scaled I and Q signals;

subtracting the scaled I and Q signals; and

quadrature modulating the added and subtracted signals.

2. A method for modulating I and Q signals, the method comprising the steps of:

generating a first and second scaling factor dependent on the phase error of the quadrature outputs of a local oscillator utilised during quadrature modulation, the first scaling factor comprising $2.\cos(\alpha/2)$, wherein α is the relative phase of the quadrature outputs of the local oscillator utilised during quadrature modulation of the added and subtracted signals;

applying a first scaling factor to an input I signal;

applying a second scaling factor to an input Q signal;

adding the scaled I and Q signals;

subtracting the scaled I and Q signals; and

quadrature modulating the added and subtracted signals.

3. A method according to claim 1 wherein the second scaling factor comprises $2\cdot\sin(\alpha/2)$, wherein α is the relative phase of the quadrature outputs of the local oscillator utilised during quadrature modulation of the added and subtracted signals.

4. A quadrature modulator for modulating I and Q signals comprising:

a first scaling means for scaling the input I signal by a first factor, the first scaling factor comprising $2\cdot\cos(\alpha/2)$, wherein α is the relative phase of a local oscillator utilised during quadrature modulation of the added and subtracted signals;

a second scaling means for scaling the input Q signal by a second factor;

adding means for adding the scaled I and Q signals;

subtracting means for subtracting the scaled I and Q signals; and

modulating means for quadrature modulating the added and subtracted signals, wherein the first and second scaling factors are dependent on the phase error of a local oscillator utilised during quadrature modulation of the added and subtracted signals.

5. A quadrature modulator according to claim 4, wherein the second scaling factor comprises $2 \cdot \sin(\alpha/2)$, wherein α is the relative phase of a local oscillator utilised during quadrature modulation of the added and subtracted signals.

6. A quadrature modulator according to claim 4 or 5, wherein the modulating means comprises:

a local oscillator for generating quadrature local oscillator signals having a phase difference;

a pair of mixers to combine the added and subtracted signals with respective quadrature local oscillator signals;

adding means to add the outputs of the pair mixers.

7. A mobile communications device including at least one quadrature modulator according to any one of claims 4 to 6.